IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of: **Syuushi NOMURA et al.** Group Art Unit: **1723**

Application Number: **10/500,042** Examiner: **Tony Glen Soohoo**

Filed: **June 23, 2004** Confirmation Number: **5201**

For: **FIELD CONVERTER AND FLUID PROCESSING DEVICE USING THE CONVERTER**

Attorney Docket Number: **042449**
Customer Number: **38834**

DECLARATION UNDER 37 C.F.R. §1.132

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

I, Syuushi NOMURA, a citizen of Japan, hereby declare and state the following:

1. I graduated from Kyushu Institute of Technology of Kitakyushu-shi, Fukuoka, Japan in 1975 with a Bachelor degree in Engineering.

2. I am the author of the Certificate of comparative experiment-1 entitled "Comparative Examination of sterilization power of the water that passed through the pseudo (non-heated) liquid processing device, " attached hereto.

3. I have reviewed and am familiar with the above-identified patent application, as well as the Official Actions dated December 1, 2006, May 16, 2007 and January 9, 2008 in the application.

4. I have reviewed and am familiar with the contents of cited reference(s), U. S. Patent Nos. 3,747,656 to Mortus, U. S. Patent Nos. 3,424,437 to Shearer, and JP09010776 by Hiromi et al., cited in the Official Actions in the above-identified application.

5. From the experimental results as set forth in the attached paper and those of the specification, I have concluded, among other things, that U. S. Patent Nos. 3,747,656 to Mortus U. S. Patent Nos. 3,424,437 to Shearer, and JP09010776 by Hiromi et al. do not teach or suggest the fluid processing device as set forth in the application, nor the results obtained by the device, nor would the device be obvious to one of skilled in the art based on the teachings of Mortus, Shearer and

Declaration under 37 C.F.R. §1.132
Application No. 10/500,042
Attorney Docket No. 042449

Hiromi et al.

The undersigned declares that all statements made herein of his own knowledge are true, and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of Title 18 of the United States Code and that willful false statements may jeopardize the validity of the application or any patent issued thereon.

Syuushi Nomura

Syuushi NOMURA

Signed this 11 day of March, 2008.
Month Year

Certificate of comparative experiment-1

Comparative Examination of sterilization power of the water that passed through the pseudo (non-heated) liquid processing device

Shyuusi NOMURA

1. Introduction

A comparative examination of sterilization power of the water that passed through the pseudo (non-heated) liquid processing device was carried out.

2. Experimental method

The liquid processing device used was the same fluid processing device that was explained in the description of WO 03/055591 A1 under the subtitle of example 4 of the embodiment and Fig. 6 and Fig. 7, except the material pieces have not been heat-treated, as described below.

In the pseudo liquid processing device, seven of the first arrangements of pieces, which had been called as the first field converter in the specification, were positioned. The 171 × 7 (total 1,197) material pieces were not heat-treated. In this comparative examination, such liquid processing device in which no heat-treated material pieces were positioned, was called as "pseudo liquid processing device" or "pseudo (non-heated) liquid processing device".

Distilled water (manufactured by Kanto Chemical Co., Inc.) was poured into an inlet of the pseudo liquid processing device and flowing water from an outlet of the pseudo liquid processing device by the action of gravity was colleted. The collected water was called the pseudo processed distilled water. The remainder of the distilled water, which is intact distilled water, was used as comparative examination.

10 ml of fungus liquid having viable cell count 10^7/ml were inoculated into 90ml of the pseudo processed distilled water, and incubated at room temperature, which is about 25 ℃. As the control experiment, 10 ml of the same fungus liquid having viable cell count 10^7/ml were inoculated into 90ml of the intact distilled water, and incubated at room temperature, which is about 25 ℃. The viable cell was counted after 1 hour, 3 hours, 8 hours and 24 hours from the

inoculation.

The viable cell was counted by the way that an appropriate amount of the inoculated water was scattered into culture medium, and cultured, the number of produced colony were counted. In addition, in order to count the viable cell at the point of the inoculation, 10ml of the same fungus liquid were diluted into 90ml of phosphate buffer (1/15M, pH7.2). The phosphate buffer was made, using intact distilled water. The viable cells at the point of the inoculation were counted using the same culture method.
The bacteria employed for the examination were Escherichia coli (IFO-3972) and Staphylococcus aureus (IFO-12732). The culture medium employed in the count of viable cell was standard agar medium (Eiken Chemical Co., Ltd.).

The viable cell count at the point of the inoculation, was calculated by the means of one of the colony culture examination. The viable cell count after 1 hour, 3 hours, 8 hours and 24 hours, was calculated by the means of three of the colony culture examination.

3. Result and discussion

Examination results are shown in Table 5-1, 5-2 and Table 6-1 , 6-2.

Table 5-1 Result of Escherichia coli

Pseudo processed distilled water				
	1	2	3	MEAN
Beginning	$2.1X10^6$			
1 hour	$2.7X10^6$	$2.4X10^6$	$2.3X10^6$	$2.5X10^6$
3 hours	$2.3X10^6$	$3.9X10^6$	$3.1X10^6$	$3.1X10^5$
8 hours	$2.3X10^6$	$2.3X10^6$	$2.3X10^6$	$2.3X10^6$
24 hours	$2.3X10^6$	$2.3X10^6$	$2.3X10^6$	$2.3X10^6$

Table 5-2 Result of Escherichia coli

Intact distilled water				
	1	2	3	MEAN
Beginning	$2.1X10^6$			
1 hour	$2.0X10^6$	$2.2X10^6$	$2.4X10^6$	$2.2X10^6$
3 hours	$1.8X10^6$	$2.7X10^6$	$2.5X10^6$	$2.3X10^6$
8 hours	$2.0X10^6$	$2.3X10^6$	$1.7X10^6$	$2.0X10^6$
24 hours	$2.1X10^6$	$1.9X10^6$	$2.1X10^6$	$1.4X10^6$

In the Table 5-1 and 5-2, the unit of figure is CFU/ml. The same are applied in the Table6-1 and 6-2.

Table 6-1 Result of Staphylococcus aureus

Pseudo processed distilled water				
	1	2	3	MEAN
Beginning	$1.1X10^6$			
1 hour	$1.1X10^6$	$9.4X10^5$	$1.1X10^6$	$1.0X10^6$
3 hours	$1.2X10^6$	$1.0X10^6$	$1.0X10^6$	$1.1X10^6$
8 hours	$9.2X10^5$	$8.8X10^5$	$9.2X10^5$	$9.1X10^5$
24 hours	$5.4X10^4$	$8.1X10^4$	$8.0X10^4$	$7.2X10^4$

Table 6-2 Result of Staphylococcus aureus

Intact distilled water				
	1	2	3	MEAN
Beginning	$1.1X10^6$			
1 hour	$1.6X10^6$	$2.0X10^6$	$2.1X10^6$	$1.9X10^6$
3 hours	$9.2X10^5$	$1.0X10^6$	$9.9X10^5$	$9.7X10^5$
8 hours	$1.1X10^6$	$1.0X10^6$	$1.4X10^6$	$1.2X10^5$
24 hours	$9.2X10^5$	$9.7X10^5$	$9.6X10^5$	$9.5X10^5$

The pseudo processed distilled water does not showed sterilization ability against Escherichia coli, namely, after 24 hours from the inoculation, the viable cell count in the pseudo processed distilled water was $2.3X10^6$ as shown in Table

5-1, while the viable cell number after 24 hours in the intact distilled water was 1.4×10^6 as shown in Table 5-2.

The pseudo processed distilled water does not showed sterilization ability against Staphylococcus aureus. Namely, after 24 hours from the inoculation, the viable cell count in the pseudo processed distilled water was 7.2×10^4 as shown in Table 6-1, while the viable cell number after 24 hours in the intact distilled water was 9.5×10^5 as shown in Table 6-2. The difference of viable cell count between the pseudo and the intact distilled water is about ten times.